



NaOclean[®]

Disinfectant Generator & High Pressure Washer

User Guide & A/S manual

Strong **Disinfecting·Deodorizing Power**

Prevent Disease such as Food poisoning

Safe to **Human Body**

Harmless and **Environment Friendly** Product

Almost **No Residual Chlorine**

※ User must operate the device in accordance with this manual,
or we are not responsible for accident caused wrong operation.



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WARNING

ABOUT DISINFECTANT

- Never mix disinfecting water with other disinfectant, abstergent and chemicals.
- Chlorine concentration may be degraded by ultraviolet rays, high temperature or long period of time.
- Do not use the disinfectant in cooking and drinking water.
- Do not use the disinfectant in the cultivation of plants, animals, fish and shellfish, etc.
- Never use roasted salt or salt used for cooking that contains citric acid or amino acid.
- Do not use the salt of powder type, because of hardening when it is blended with water.
- If the saline solution remains in the tank for an extended period of time, it may cause corrosion.

ABOUT DEVICE

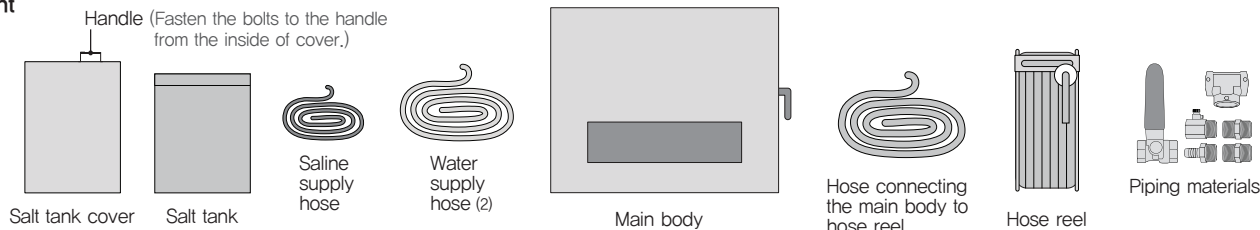
- Keep the device away from the children or unskilled people.
- If the surrounding temperature dropped below zero degrees, please protect the device from a freezing trouble.
- Before starting the device, please inspect to see whether the screw nuts and the bolts are all tightened up.
- Do not leave the motor idling for a long time. A long time idling may cause the damage of the motor or other parts.
- You must replace the Pump oil before the expiration date approchs.
(The oil must be changed after the first 50 hours of work and successively every 100 hours.)
- If there is some abnormal noise or fummy phenomenon of the Washer, please turn off the power, lower the pressure appropriately, and wait until the overheated motor cools down.

1. Packing list

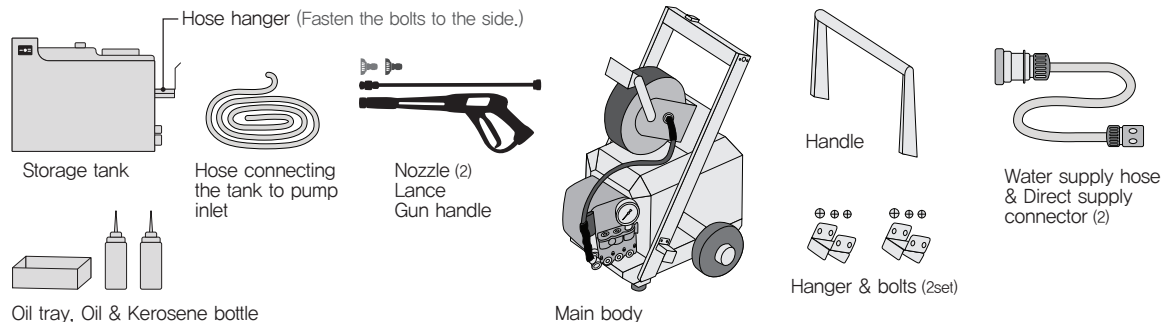
• Carefully check according to the packing list and inspect all parts are completely prepared.

Please promptly inform us if discover any damaged parts caused during the transportation.

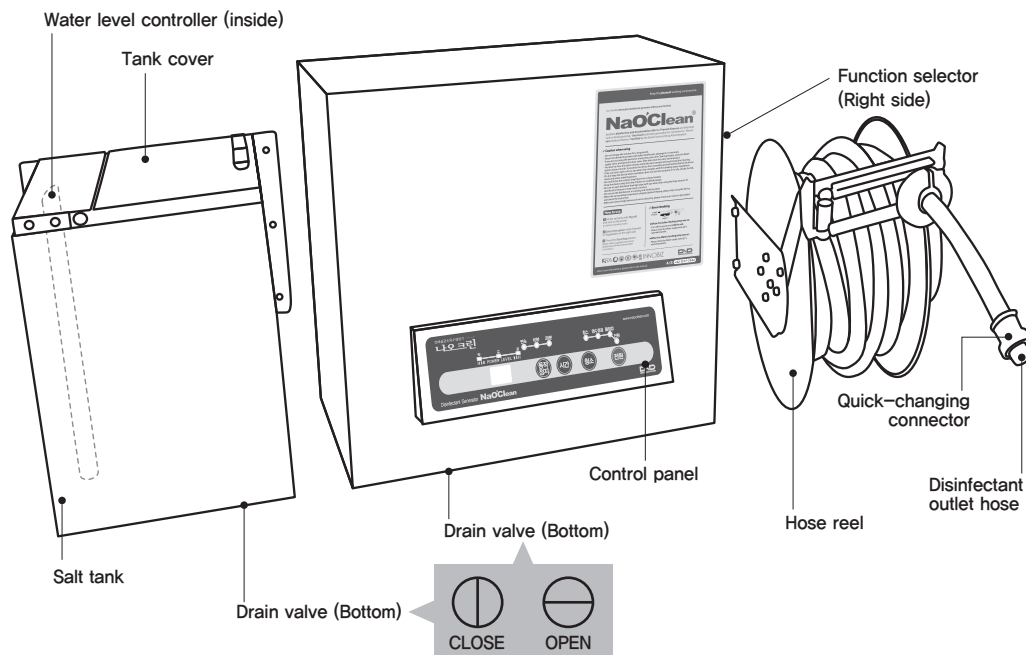
Disinfectant generator DES-10K



High pressure washer DES-WA100E



• Disinfectant generator (DES-10K)



• Function selector



You can choose either Vegetables (100ppm) or Utensils (200ppm).

※When you need to disinfect the food materials, you must turn the selector to Vegetables.

2. About device > Components / Specification & Features



• Disinfectant generator (DES-10K)

Error check lamp

Normal: 4 lamp is turned on.
Error: more than one lamp was turned off.

Display

Normal: Display the number.
Error: Display the 'Er'.

Start/Stop (Disinfectant)

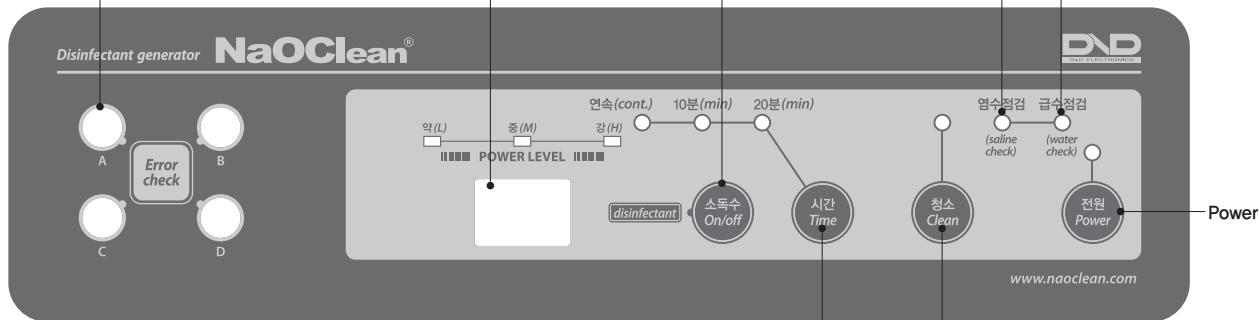
This button is generating the disinfectant.
You have to use the disinfectant more than 10 seconds because the normal disinfectant is supplied after 10 seconds.

Saline checking lamp

When the saline solution is not supplied normally, the lamp will blink with a buzzer alert.

Water checking lamp

When the water is not working normally, the lamp will blink with a buzzer alert.



Time

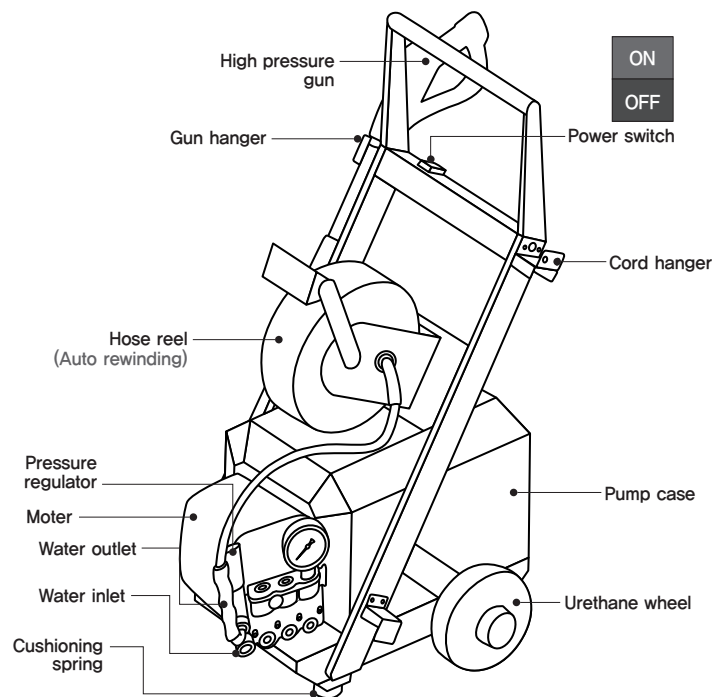
When the device is operating, you can choose the time '10min', '20min' or 'continuation'. After that time, it is turned off automatically.

Cleaning

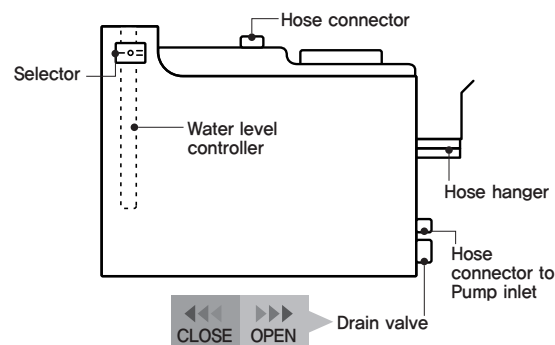
When you press the *cleaning* button, water is supplied for 2 minutes and cleans inside the device automatically. When cleaning, any buttons (except on the *power* and *start/stop* button) are not operated, (it is recommended to clean twice a month.)

2. About device > Components / Specification & Features

• High pressure washer (DES-WA100E)



• Storage tank



[Disinfectant] ◀  ▶ [Washer]

※You must select the selector regarding to the direction on the below.

When you use the only Disinfectant generator, please select the [Disinfectant].

When you use the High pressure washer with generator, select the [Washer].

※Never select the middle position. When it remains in the middle, a serious problems may occur.

2. About device > Components / Specification & Features

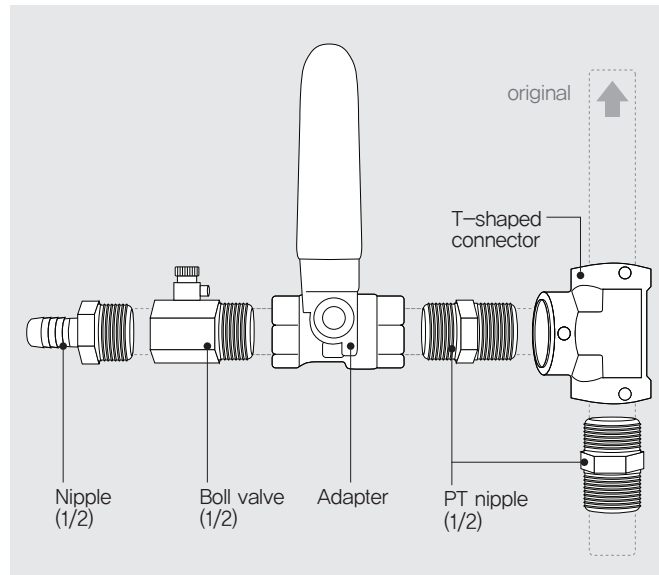
• Specifications

※ Wall mounted type

Model	DES-10K
Rated voltage	AC 220V, 60Hz / max 1.4kW
Dimensions	W480 X D300 X H490mm
Weight	About 25kg
Generating	About 15~20L/min
Concentration of disinfectant	Low 90~110ppm / High 180~200ppm with function selector (It may vary depending on the water quality.)
Electrolysis method	Without membrane
pH	7.0~7.5pH
Additive	Salt (Salinity more than 88%)
Using condition	Surrounding temp 5~40℃, water temp 5~30℃ humidity less than 95%RH
Accessories	Piping materials

※You can order devices depending on the purpose.

Piping materials



2. About device › Components / Specification & Features



• Specifications

※ Portable type

Model	DES-WA100E
Rated voltage	AC 220V, 50/60Hz, max 3kW
Dimensions	W520 X D585 X H970mm
Weight	About 65kg
Flow rate	Approx 8L/min ±10%
Max pressure	Approx 110~130bar
Hose length	8~10M
Nozzle	2 types (25, 40 degrees)
Using condition	Surrounding temp 5~40°C, water temp 5~30°C humidity less than 95%RH
Accessories	Direct supply connector (2), Water supply hose(5M), Oil tray, Oil & Kerosene bottle

※You can order devices depending on the purpose.

• Features of NaOClean

1) Convenience and economics.

- Finish the cleaning, sterilizing and deodorizing at once.
- Save the water consumption drastically.
- Very low operation cost by replacing expensive chemicals.

2) Powerful sterilizing, deodorizing and cleaning capability.

- Remove and clean various harmful germs and foreign matters.
- Sterilize and deodorize processing facilities and equipments.
- Sterilize floor, wall and facilities of working spaces.
- Remove bad odor in toilets and bathrooms.
- Prevent slipperiness with high-pressure based powerful cleaning capability.

3) Environment-friendly and highly stable.

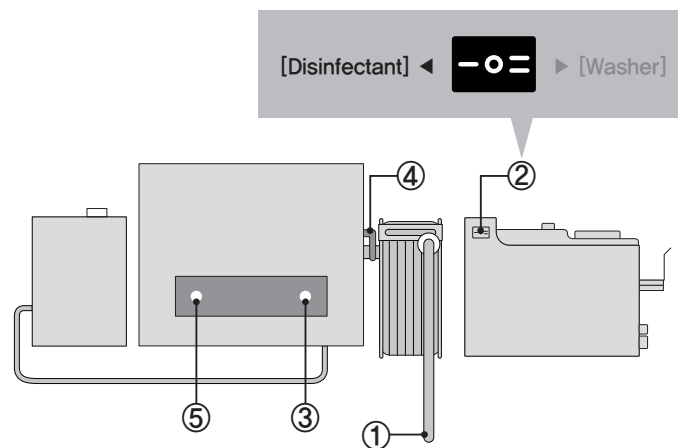
- No secondary contamination.
- Do not use chemical agent.
- Do not remain strong smell.
- No residual toxicity.
- Safe for humans and environment.

4) Portability and effectiveness.

- Easy to move because it does not have any storage tank on the device.
- Conveniently usable in a small or narrow spaces with High pressure spray gun.
- Practically no restriction of operation as far as electric power is available.

•How to use only Disinfectant generator (DES-10K)

1. Fill the salt tank with 5kg salt.
2. Check the Disinfectant outlet hose (①) is disconnected from the Storage tank. You must disassemble them to use the hose.
3. You must select the selector (②) to [Disinfectant].
(If the selector is selected to [Washer], disinfectant would not be generated.)
4. Turn on the power of Disinfectant generator (③).
(The power lamp will be turned on and in standby mode.)
5. Select the option of the 'Utensils' or 'Vegetables' on the right side of the device (④). (Utensils: 200ppm, Vegetables: 100ppm)
6. Press the 'Start/Stop' button (⑤) to create the disinfectant.
7. After using it, turn off the power.



•How to use High pressure washer with disinfectant (DES-WA100E)

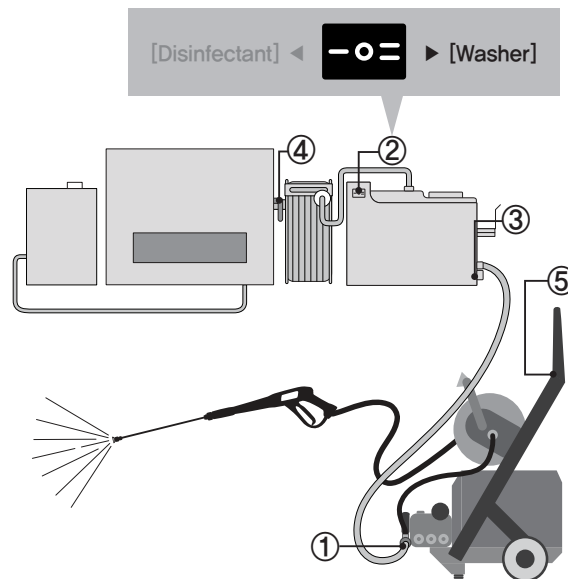
1. Fill the salt tank with 5kg salt. And, assemble the Storage tank's hose with the Pump inlet (①).
2. You must select the selector (②) to [Washer]. (If the selector is selected to [Disinfectant], water may flow out from the Storage tank.)
3. Check the Drain valve (③) is closed.
4. After that, turn on the power of Disinfectant generator.
5. Select the option of the 'Utensils' on the right side of the device (④).
6. Press the 'Start/Stop' button to create the disinfectant. Before turning on the power of Washer, you must pull the trigger to release the remaining pressure.
7. And then, press the ON button (⑤), pulling the trigger.

※When the motor is operating normally, please wait until the air in the pump is released by pulling the trigger, and then you can use the Washer.

※When the motor is not operated normally, (If motor makes strange sound,) please turn on and off 2~3 times while pulling the trigger continuously.

8. After that, hold the gun with two hands, aim it toward your target area and shoot. ※When using, the distance between the nozzle and the surface of the object is usually less than 1 meter.

9. After using it, turn off the power of Washer and Disinfectant generator, and please release the remaining pressure by pulling the trigger.



3. Using the device > How to operate / How to clean & Maintenance / Applications



• How to adjust the pressure of the Washer

It is available to adjust the pressure according to the purpose. (110~130bar)
At first, the pressure is set as 130bar.

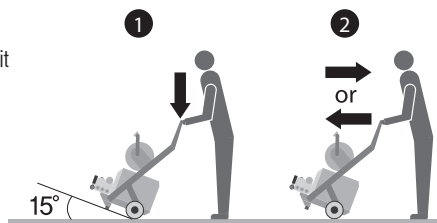
*If turning to the
counter-clockwise,
the pressure will
decrease.*



*If turning to the
clockwise,
the pressure will
increase.*

• How to move the Washer

Lower the handle about
15 degrees and then push it
for easy moving.
(Refer to the picture)



• When it's difficult to roll or unroll the hose of the Washer

If the hose is too stiff to roll or unroll on the hose reel,
turn off the power, release the pressure by pulling
the trigger and then roll or unroll the hose.

3. Using the device > How to operate / How to clean & Maintenance / Applications



• Choose the type of spray nozzle of the Washer

There is an angle of 25° (green nozzle) and 40° (white nozzle). These nozzles can make high pressure flow (8L/min) and strong ability to clean, which are used to clean widespread dirt.

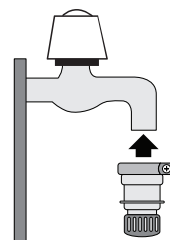


How to change the nozzle Push the snap ring to the back and change the nozzle. After that, turn it back as original place.

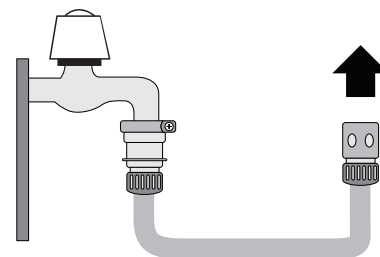
- ※Do not put your face on the front of the gun when the device is running.
- ※Do not attempt to change nozzles while the device is running.
- ※Turn the power off before changing nozzles.
- ※Ensure nozzle is completely inserted in Quick-changing joint.
- ※If you want other angles (0, 15°) or more larger quantity of supply nozzle, please let us know. (Option)

• How to use just tap water with the Washer

If you want to use with tap water not disinfectant, please use provided Direct supply connectors and hose.



Please join the Direct supply connector to faucet, and fasten the bolt.



And then, connect the other side connector to the Pump inlet of the Washer.

• Using a detergent with the Washer (Option)

If you want to remove some greasy dirt in work area, you can use a detergent with pump connector. (Option)

- **After using the Disinfectant generator (DES-10K)**

1. If the Disinfectant outlet hose is connected to the Storage tank, please disconnect them.
 2. After that, you have to rinse the saline solution inside the each component by pressing the Cleaning button twice a month.
It prevents the device from corroding and will extend the life of device.
 3. **When you clean the Salt tank**, please remove inside the tank and wash out with tap water. After that, open the Drain valve at the bottom of the tank. After draining, close the valve. (It is recommended to clean inside the tank periodically.)
-

- **Freeze protection and device maintenance when it is not used for a long time. (DES-10K)**

When the surrounding temperature dropped below zero degrees, please stop using the device and follow directions for cleaning.

1. Remove inside the Salt tank, and pour a little tap water.
 2. Press the Power switch and Start/Stop button. (When the device is working, it may occur the error of the saline check.)
 3. Close the Water supply valve.
 4. Drain the water from the Salt tank and main unit by opening the Drain valve at the bottom of the device.
 5. After that, close the Drain valves.
 6. Try step 1~5 once or twice. (It helps to wash out the saline in the electrolytic bath and pump.)
 7. Unplug the power cord and store.
-

• After using the Washer

You have to rinse the saline solution inside the Washer by washing out with tap water. It prevents the device from corroding and extends the life.

1. Remove inside the Storage tank, and pour a proper amount of tap water.
2. Assemble the Storage tank's hose with the Pump inlet.
3. Select the selector to [Washer] on the Storage tank, and close the Drain valve of tank.
4. Turn on the power of the Washer and pull the trigger to drain off the water from the tank.

※Keep the device in dry and clean environment.
Air intake should not be blocked by impurities.

• Cleaning the gun



If the nozzle becomes clogged with foreign materials, the pump pressure will pulsate. Clean the nozzle and other parts immediately with the following instructions:

- 1) Shut off the Washer and close the water supply.
- 2) Pull the trigger to release any remaining pressure.
- 3) Disconnect the spray lance from the gun and the high pressure nozzle from the spray lance. (Refer to the picture)
- 4) Shake the dust off inside the spray lance, nozzle and the gun, and wash out inside the each parts with tap water.
- 5) Reassemble the nozzle to the spray lance.
- 6) Reconnect spray lance to the gun handle.
- 7) Start the device and check if something is wrong.

3. Using the device > How to operate / How to clean & Maintenance / Applications



• Disinfectant generator (DES-10K) + High pressure washer (DES-WA100E)

Machines & Equipments

Clean the fish, meat, food processing equipments

The mobility of this model enables users to remove effectively the bacteria or microbe. Especially it is mainly recommended to clean the fish and meat processing equipments after work. A strong high pressure removes the food particles stuck in a small niche and bad odor completely. It prolongs the life time of your processing equipments and prevents secondary pollution generated from them.



Workplaces



Floor, drain, stairs and all around the workplaces.

NaOClean maintains clean and sanitary environment in and outdoors. Also, it solves the major health problems in your workplaces. It disinfects effectively and removes bad odor in many places where should be cleaned including fish & meat processing factories, feeding facilities, kitchens, floor, drain, restrooms and all around the workplaces.

Public facilities

Prevent of diseases and keep the pleasant environments.

Deodorize, sterilize and clean the places required the public hygiene such as the sauna, public bathrooms and swimming pools etc.

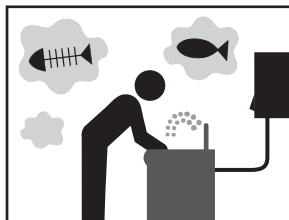
• Recommended applications

- Management of hygiene in fish and meat processing factories
- Seafood restaurants and feeding facilities
- Livestock and fishery
- All kind of public facilities and accommodations

3. Using the device > How to operate / How to clean & Maintenance / Applications

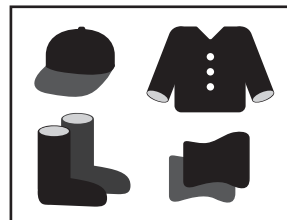


• Using only the Disinfectant generator (DES-10K)

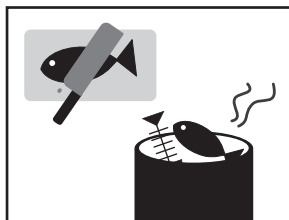


It sterilizes and deodorizes a bad smells on your hand and body. It is mainly used in food processing such as fish or meat. You can effectively use this device before & after work. NaOClean has been shown to be highly effective in disinfecting bacteria such as E.coli, S.aureus, V.parahaemolyticus and S.typhi by washing hand.

※You must turn the function selector to Vegetables. (100ppm)

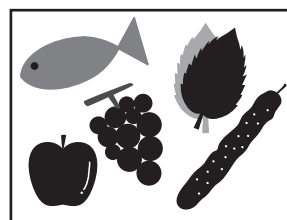


It disinfects dishtowel, working clothes, caps, boots, and removes bad odor such as fishy smell by soaking them for 5~10 minutes in NaOClean water. It is more effective to hand-rub them. (Be cautious as the solution may bleach the colored textiles.)



It effectively removes bacteria and bad odor from the rotten fish, meat and other foods. Also, it sterilizes dirty knives, cutting board, dishes, spoon, fork, cup and etc. Wash out them with NaOClean water. If the smells are strong, soak for more than 10 minutes.

(Wash out once with tap water if you are worried about corrosion problems.)



You can sterilize many kinds of bacteria on the surface of fruit, cucumber, lettuce, sesame leaf, ingredients, processing food and seafood. Soak them for 3~5 minutes and then, you can rinse **only once**, while the drug has to rinse for several times (4~5).

※You must turn the function selector to Vegetables. (100ppm)

4. Caution › Caution when using / Handling of disinfectant / Recommended salt

- **Precautions for safe operation** ※Please observe the following instructions that are precautions for safe and correct operation to prevent unexpected hazards of damage and injury.

Disinfectant generator + High pressure washer

- Do not use a damaged power cord or a socket.
- Do not touch the power plug with a wet hand.
- If you have to use an extension cord inevitably, do not exceed the rated capacity and use a waterproofed electric cord.
- Never drag the power line to move the device, and the power line must be placed with care.
- Do not pull the only power cord from a distance.
- You have to use a grounded socket and approved power cord. (Refer to the page 30 › How to make a ground connection)
- The power supply must be equipped with leakage circuit breaker.
- If the power cord or any other important part is damaged, do not attempt to use the device.
- Please check the every hose is perfectly connected.
- Do not attempt to disassemble, repair or alter the device. (You may suffer from electric shock or hurt.)
- If there is a malfunction of the device, make sure it is fixed by professional maintenance staff to avoid hidden danger.

- The operator must be familiar with the working principle and structure, must know the operation method of each parts and how to shut down the device in emergency.
- Keep the device away from the children or unskilled people.

Disinfectant generator (DES-10K)

- Before using the device, you must select the selector to [Disinfectant] on the Storage tank. (If the selector is selected to [Washer], disinfectant would not be generated.)
- Please stop using the device when the surrounding temperature dropped below zero degrees.
- Do not leave the device too long without cleaning inside the device with tap water. (Refer to the page 15 › How to clean)

4. Caution > **Caution when using** / Handling of disinfectant / Recommended salt



High pressure washer (DES-WA100E)

- Before using the device, you must select the selector to [Washer] on the Storage tank. (If the selector is selected to [Disinfectant], the water may flow out from the Storage tank.)
- Do not disconnect the gun from the hose as long as the pressure remains. Because the High pressure water in the hose may spurt and hurt the user.
- Do not leave the motor idling for a long time. (Never excess maximum 5minutes.) A long time idling may cause the damage of the motor or other parts.
- When you are not using the device, please turn off the power.
- Beware of sharp edges of the pump cover.
- The water stream from the high pressure gun has some potential danger, so never point to people, animals, machinery and power source directly.
- Keep the Spray gun hose away from the hot air exhaust.
- Combine the hose connector with the Pump inlet completely, and check whether the screw nuts and bolts are all tightened up.
- If there is some abnormal noise of the device or fummy phenomenon, please turn off the power and lower the pressure appropriately.

- When pulling the trigger, there will be a recoil force. So please do tightly grasp the handle with two hands and do not twist the high pressure hose.
- The water stream from the high pressure gun can damage the plank, glass, the paint on the surface of motorcycle, and also can destroy the edge of the objects as well as flowers and plants. So please check the water stream before spray the water on the objects.
- The High pressure hose, Connectors, and High pressure gun are major parts of the device. Please only use the original accessories to make sure the safe use of the device.
- Place the device on safe and flat ground while using.
- Never give any impact to the device.
- You must replace the Pump oil before the expiration date approaches. (Refer to the page 41)

Do not operate the Washer in the following cases

- When the motor speed has changed.
- When the nozzle pressure has changed.
- When the operation of the pump is unstable.
- When you find a flame or smoke in a confined space.
- When you experience excessive vibration.
- When the device is exposed to rain or bad weather.

4. Caution › Caution when using / Handling of disinfectant / Recommended salt



• Caution of handling disinfectant



1. Do not storage the solution for a long period.
2. **Never mix disinfecting water with other disinfectant, abstergent and chemicals.**
(But, it can be used with kitchen detergent in some case.)
3. If you have sensitive skin, wear protective equipment such as rubber gloves.
4. Wear a protective goggles while using the Washer. Small pieces of debris may be flying around.
5. Do not use the disinfectant in the cultivation of plants, animals, fish and shellfish, etc.
6. Do not sell the disinfectant created from the device.
7. Be careful that the solution may bleach the colored textiles.
8. If the saline solution remains in the tank for an extended period of time, it may cause corrosion.
9. If you exceed the available chlorine concentration, rinse with tap water after using the disinfectant.
10. Be sure to wash the Metal–drainage–pipe with tap water after using the large amount of disinfectant, because it may cause corrosion.
11. Chlorine concentration may be degraded by ultraviolet rays, high temperature or long period of time.
12. Do not use the solution on sesame seeds.
13. Do not use the disinfectant in cooking and drinking water.

- ※ You have to rinse after using the disinfecting water. If not, it may have a weak smell of disinfectant.
- ※ Please do not spray on the materials which are listed on the right table marked as 'weak'.

• Measures

1. When the large amounts of disinfectant get into the eyes, hold eye open and rinse gently with tap water immediately.
2. Move to the place with fresh air when you feel dizzy.
3. When you drink plenty of disinfecting water, drink clean water or milk and contact the nearest hospital.

An analysis table for corrosion-resistant material

Materials	Corrosion resistance		
	weak	normal	strong
ABS resin			○
polyethylene			○
acrylic			○
polypropylene			○
teflon			○
silicon			○
epoxy resin			○
urea resin			○
Butyl–rubbe, NBR			○
natural, urethane rubber			○
titanium, glass, ceramics			○
stainless steel		○	
plating, copper phosphor bronze	○		
brass	○		
aluminium alloy	○		
steel	○		

4. Caution > Caution when using / Handling of disinfectant / Recommended salt



• Caution before using the salt

- ① Please use the regulated amount of salt.
- ② The salinity of salt should be 88% or higher.
- ③ Never use roasted salt or salt used for cooking that contains citric acid or amino acid.
- ④ Never use the salt for picking or bay salt that have high amount of impurities.
- ⑤ Do not use the salt of powder type, because of hardening when it is blended with water.

• Recommendations of using salt

Component	Chemical symbol	Composition
Sodium	NaCl	more than 95%
Calcium	Ca	≤ 25mg/kg
Magnesium	Mg	≤ 8mg/kg
Potassium	K	≤ 78mg/kg
Iron	Fe	≤ 10mg/kg
Insoluble Sulfates	SO	≤ 1900mg/kg
Aluminum	Al	≤ 0.01mg/kg
Manganese	Mn	≤ 0.02mg/kg
Copper	Cu	< 0.1mg/kg

You can use general salt if it contains more than 88% of the NaCl.

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1. About inner components

• Inside the device of the Disinfectant generator (DES-10K)

*Check valve for saline solution

Prevent flowing backward of the saline solution or disinfectant during the device is operating.

Disassembly

Loosen the nut and disassemble the hose.

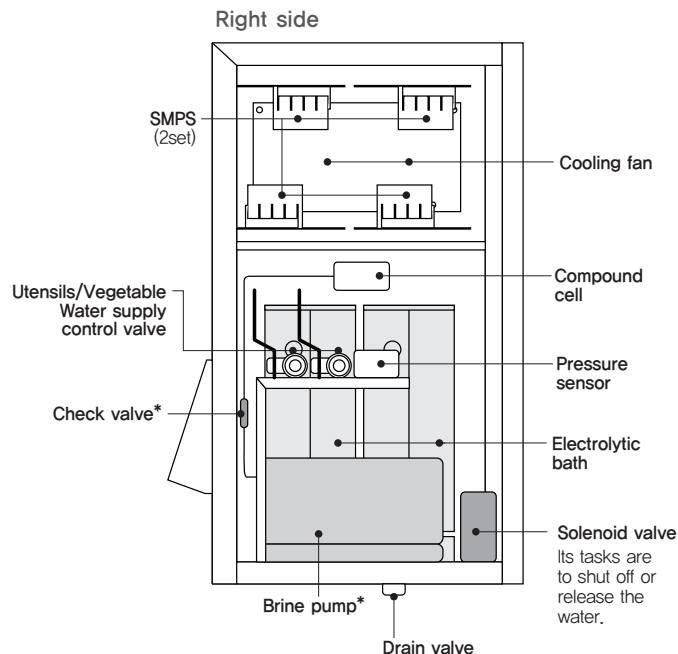
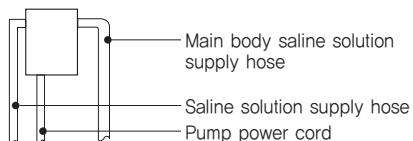
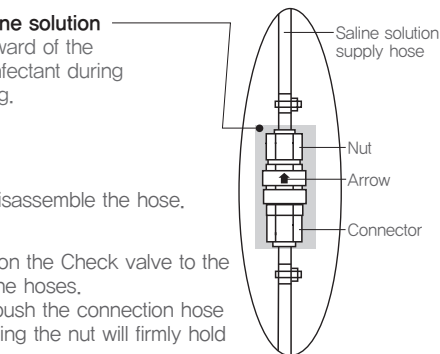
Assembly

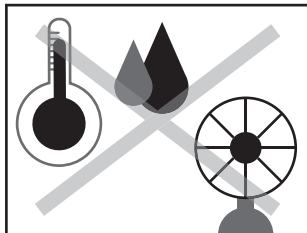
Direct the arrow sign on the Check valve to the top and reassemble the hoses.

(Loosen the nut and push the connection hose all the way in. Tightening the nut will firmly hold the hose.)

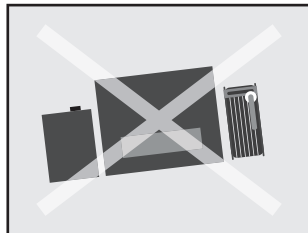
※Press the Saline solution supply hose into the end, or it will cause leakage.

*Brine pump assy



• **Caution before installation of the Disinfectant generator (DES-10K)**

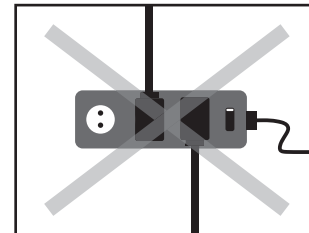
1. Do not install this device in the area where ventilation does not function properly, or in oily, smoky, humid, dusty, and water splashing places.



2. To avoid the danger of falling, **keep the device on the flat walls** and maintain level of the device.



3. Install the device in a place with surrounding temperature of 5~40°C and humidity must be less than 95% RH. **It must be protected from a freezing trouble.**



4. You have to use an approved single socket. Do not use a multi-socket. (If you use a multi-socket, it may be overheated.)

If the surrounding temperature dropped below zero degrees, please stop using the device.

If the device is not used for a long time, press the Cleaning button to clean inside the device (automatically) and completely drain by opening the Drain valve at the bottom of the device. (Refer to the page 15)

※ If a grounded socket is not available, make sure to connect the ground wire to a Grounding pole of the floor or Grounding connector. (Metal pipes)

※ Do not ground the device to a gas pipe or an antenna. (Refer to the page 30 > How to make a ground connection)

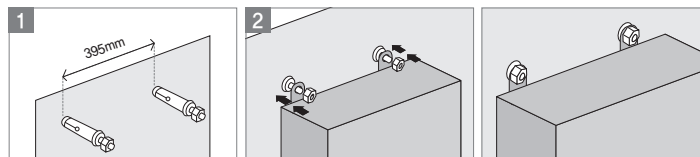
2. How to install > Installation / Pipe connection / Assembling method of Washer / Example



• How to hang the device on the wall

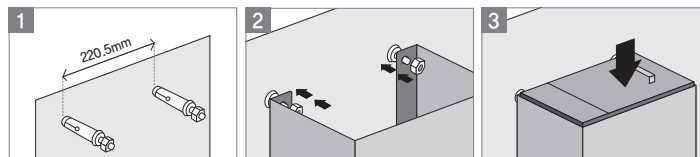
Main unit

1. Drill two holes and screw each anchor bolts on the position where the main unit will be installed. (Clearance between the holes 395mm)
2. Hang the main unit on the anchor bolts and tighten the nuts.



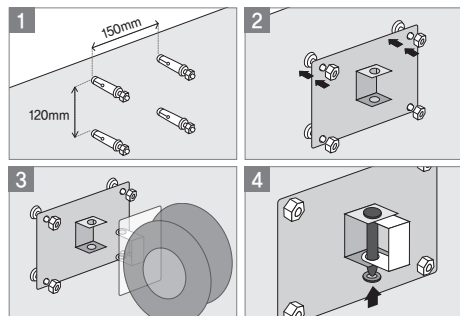
Salt tank

1. Drill two holes and screw each anchor bolts on the position where the salt tank will be installed. (Clearance between the holes 220,5mm)
2. Hang the case of salt tank and tighten the nuts.
3. Please check the case is anchored firmly and then put the inside tank in the case.



Hose reel

1. Drill four holes and screw each anchor bolts on the position where the hose reel will be installed. (Clearance between the holes: width 150mm x length 120mm)
2. Hang the rear panel on the wall where the anchor bolts are stuck and tighten the nuts.
3. Place the hose reel at the U-shaped bracket and then attach the bracket hole with the fixing pin.
4. Lastly, anchor the fixing pin that the hose reel may not to be fallen out.



※Hose reel image was omitted for easy explanation.

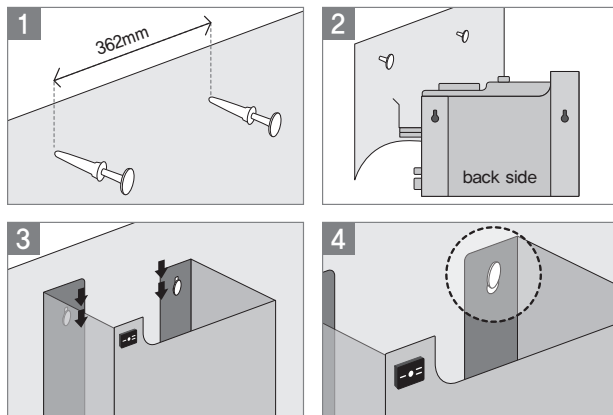
2. How to install > Installation / Pipe connection / Assembling method of Washer / Example



• How to hang the device on the wall

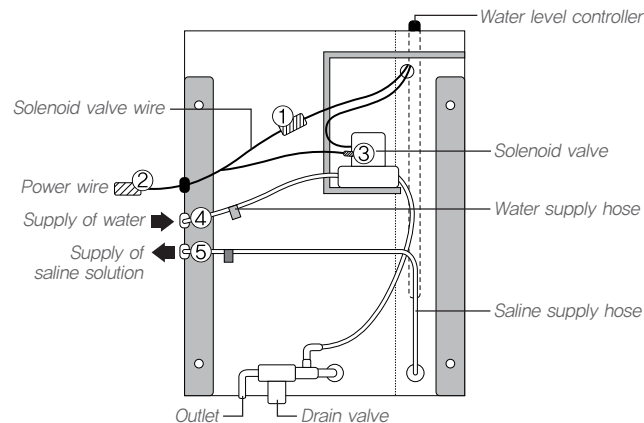
Storage tank

1. Drill two holes and screw each Concrete screw bolts on the position where the tank will be installed. (Clearance between the holes 362mm)
2. Hang the case of Storage tank.
3. Please check the case is bolted firmly and then put the inside tank in the case.



• How to connect the wire of salt tank

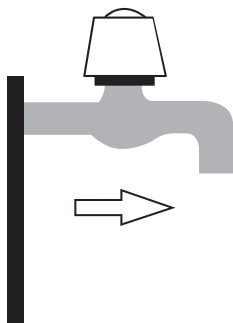
- step 1. Connect ①.
- step 2. Connect ② to the Power wire of Main unit.
- step 3. Connect ③ to the Solenoid valve.
- step 4. Connect the two hose into ④ and ⑤.
(Please distinguish color of each hoses label.)



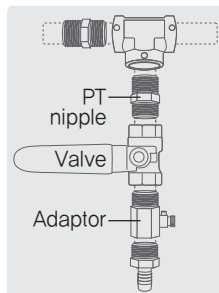
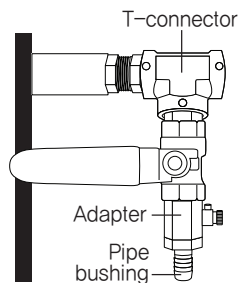
Please wash out in the Salt tank. (Refer to the page 15)
If any debris goes into the pump or Check valve, it may occur the damage of parts.

• **Pipe connection method (DES-10K)**

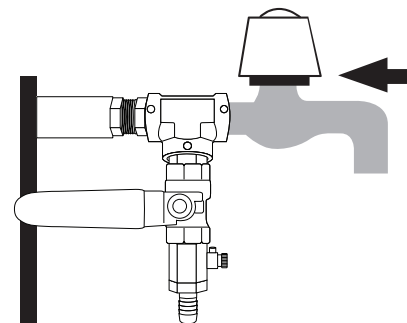
1. Remove the faucet. (Close the Water pipe before this.)



2. Connect the Water pipe connectors & Adapter.



3. Reconnect the original faucet.



• **Water supply specifications**

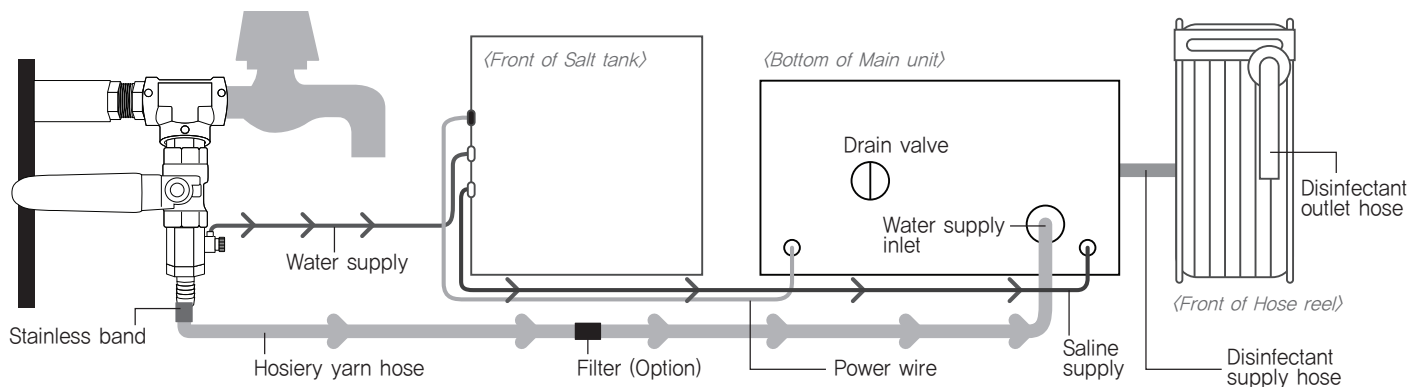
1. Only use clean water such as tap water that complies with the drinking water regulations, and do not use a hot water.
2. Install Water softer when hard underground water is used, or install a filter to remove many impurities.
(Please let us know, if you have any question about hardness of water.)
3. Water pressure: more than 1.5kgf/cm², less than 7.0kgf/cm²
4. If the water supply is inadequate due to low-pressure, the concentration of the disinfectant will be high. So, supply appropriate amount of water.
5. If the hose is connected to a faucet used mainly (both are used at the same time), concentration of disinfectant will be increased due to the low pressure and it can make an error.

2. How to install > Installation / Pipe connection / Assembling method of Washer / Example



4. Connect the hose from the Water pipe connection nipple to inlet of Main unit at the bottom.

5. After work, open the Water pipe and Valve.



Categorize	DES-10K
Hose standard	Hosiery yarn hose 12mm (inner diameter)
Pipe bushing	1/2, 13mm (outside diameter)
T-connector, PT nipple, Valve	1/2
Tightening band	Stainless band
Adaptor	1/2, 1/4

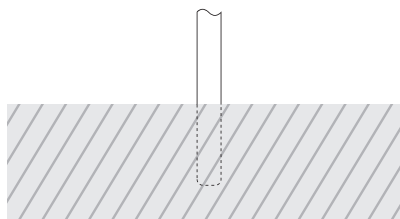
※After completion of installation, please check disinfectant is produced properly.
If an output does not fit into the product specification, open the front cover and adjust the Water supply control valve to gain right amount of solution.

• **How to make a proper ground connection**

- ※Make sure to connect the Ground wire to a Grounding pole of the floor or Grounding connector. (metal pipes)
- ※Do not ground the device to a gas pipe or an antenna.
- ※Please use a Grounded receptacle or make a ground for safety. If not, it may involve some danger of electric shock.

〈A typical earthing method〉

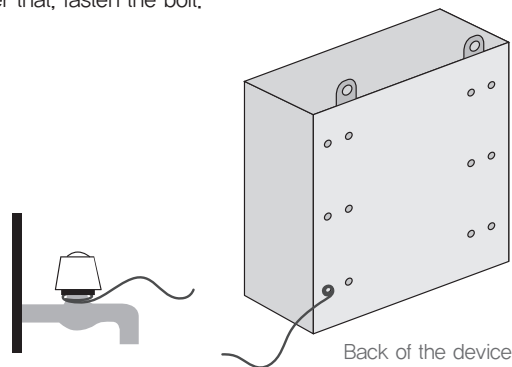
- A typical earthing electrode, consisting of a conductive rod driven into the ground.
- Electrical codes specify that earthing wires must be a certain color, to prevent wiring errors.
- In case of connecting a grounding conductor to copperplate, please bury copperplate under humid enough ground more than 75cm.



Dig a hole
about 2 feet deep.

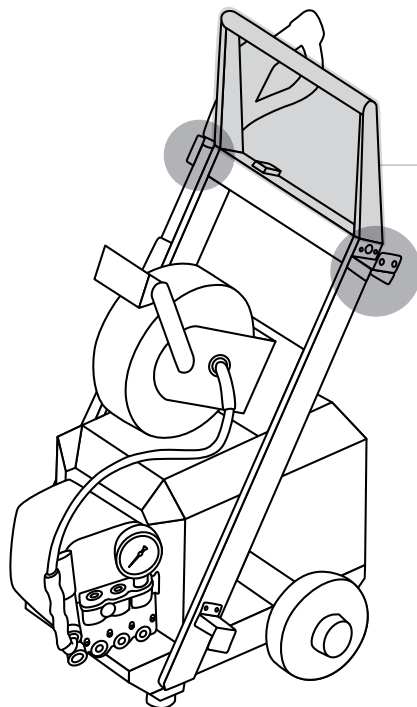
〈Earthing method with Water pipe〉

1. Please wind a grounding conductor on a faucet 2~3 times.
2. Loosen the bolt at the back of the device.
3. And wind the grounding conductor 2~3 times.
4. After that, fasten the bolt.



Back of the device

• The handle & hanger



Before starting the device, please inspect to see whether the screw nuts and the bolts are all tightened up.

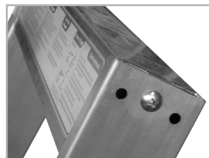
Handle

Assembling the Handle with hanger and shaft by tightening screws.

Stainless steel hanger (2 unit)

The stainless hanger is easy to assemble and disassemble by tightening or loosening a screw.

1.



2.



Assemble the handle.

3.



Assemble the hanger and tighten up screws.

4.



• Assembling method of the Washer
(DES-WA100E)

Assemble the High pressure hose to gun

Connect the High pressure hose to the Water inlet of the gun, and tighten securely.

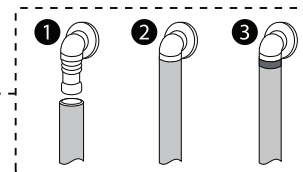
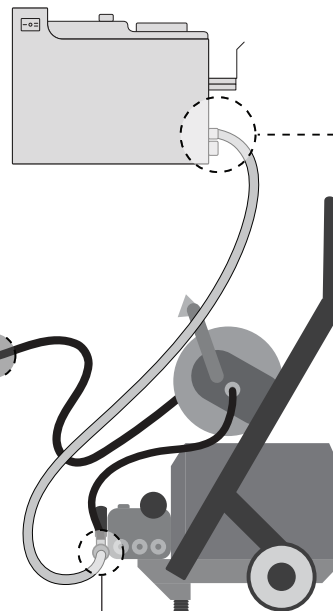
Assemble each parts of the gun

Nozzle: Push the snap ring to the back and plug the nozzle.

Lance: To assemble the spray lance to the gun handle, turn in a counter-clockwise direction.



Make sure the joint is tightly and firmly connected, otherwise the pump will not suck the water as if suck the air instead.



Assemble the hose to connector of the Storage tank (Refer to the picture)

Connect the Hose to connector of the Storage tank entirely. And tighten the hose with tightening band. (Be careful it is difficult to disassemble after tightening the band.)

Assemble the Quick-changing plug

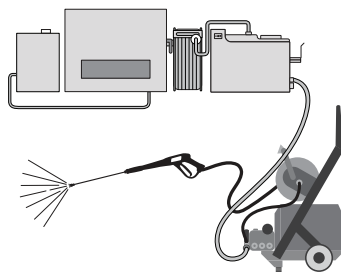
Move the snap ring and plug the Quick-changing plug rapidly and release the snap ring. Fix the High pressure hose on the pump.

2. How to install > Installation / Pipe connection / Assembling method of Washer / Example



• Installation example

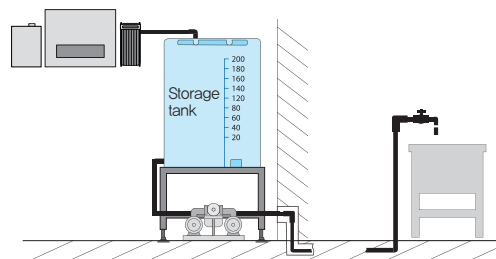
<Basic>



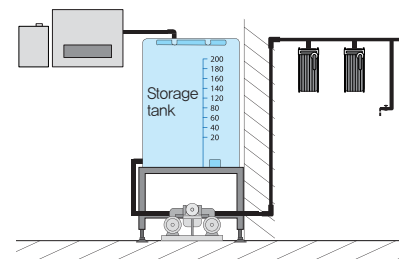
The basic combination of DES-10K and DES-WA100E

<High-capacity> Please keep the PVC pipe with lagging materials for pipe freezing protection.

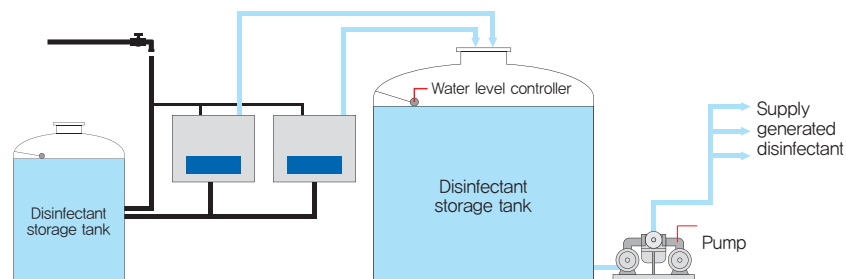
Type A



Type B

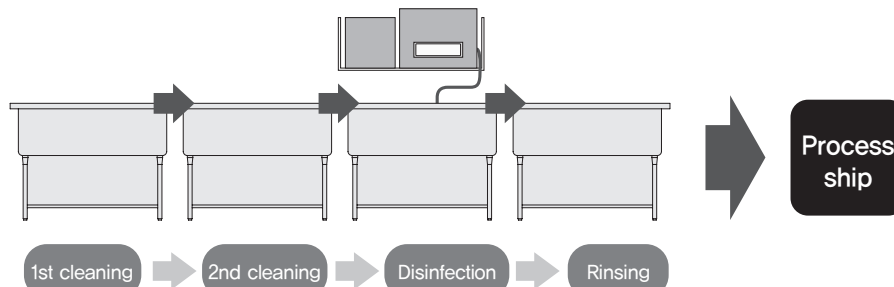


Type C

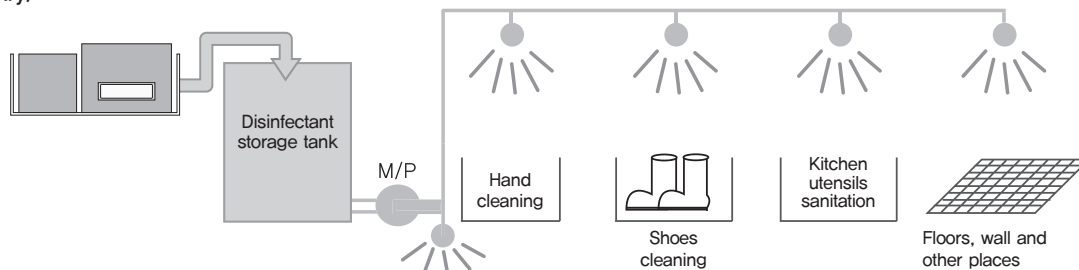


2. How to install > Installation / Pipe connection / Assembling method of Washer / Example

〈Disinfection process
for food materials〉



〈Disinfection process
for large volume industry〉

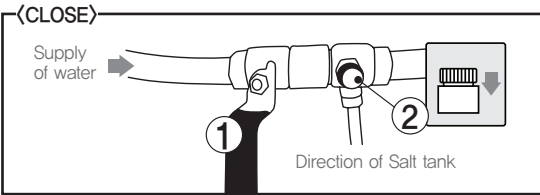
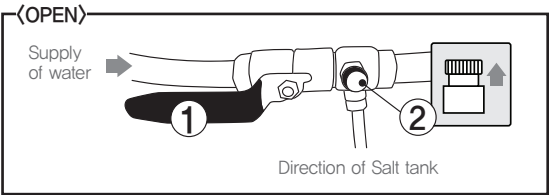


3. Troubleshooting > Check the saline / Check the water supply / Check the other errors



• Check the saline solution (DES-10K)

- ※ Do not touch, modify or repair the parts inside the device.
- ※ In case of abnormal operation, unplug the power cord and request a repair by contacting the seller.

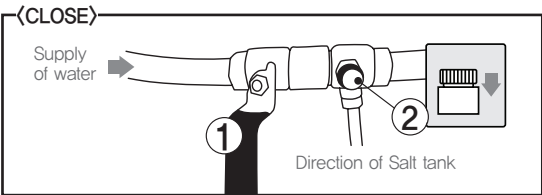
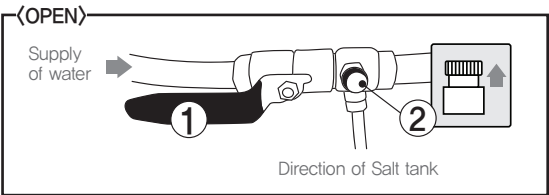


Cause	Action
When the Saline checking lamp is blinking with a buzzer alert,	<ul style="list-style-type: none"> –Turn off the power and refill the salt in the Salt tank. –Please check the Water supply valve ② is opened properly. –If it keeps flashing an error message, please check the SMPS. (Refer to the page 40) –If it keeps flashing an error message, please check the Pump. (Refer to the page 40)
When the saline solution is not supplied normally because the Check valve is blocked,	–Clean or exchange the Check valve. (Refer to page 24)

3. Troubleshooting > Check the saline / **Check the water supply** / Check the other errors

• **Check the water supply (DES-10K)**

- ※ Do not touch, modify or repair the parts inside the device.
- ※ In case of abnormal operation, unplug the power cord and request a repair by contacting the seller.



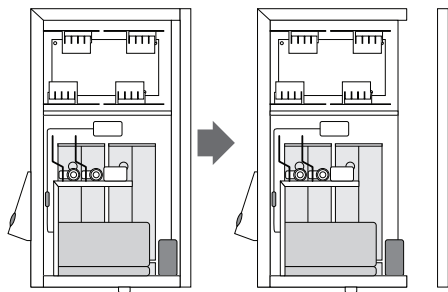
Cause	Action
-When the Water supply checking lamp is blinking with a buzzer alert,	-Please check the Water supply valve ① is opened properly.
-When the saline solution is not supplied normally because of impurities in the Water valve. -When the water flows out from the Disinfectant outlet hose, even if the power is shut off.	-Clean or exchange the Water supply solenoid valve. (Refer to the next page > How to clean the Water supply solenoid.)

3. Troubleshooting › Check the saline / Check the water supply / Check the other errors



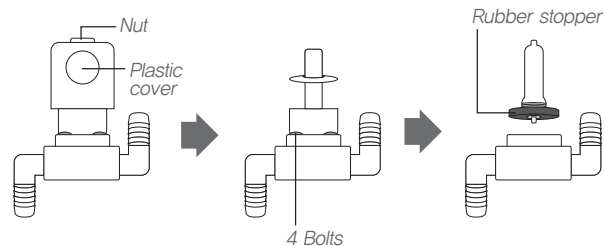
•How to clean the Water supply solenoid

1. After closing the Water supply valve, please disassemble the back cover of the device.



2. Disassemble the Solenoid like the picture, and wash out the rubber stopper inside the Solenoid.

- ① Loosen the nut on the top.
- ② Disassemble the plastic cover.
- ③ Loosen the 4 bolts.
- ④ Clean the rubber stopper.
- ⑤ Reassemble the Solenoid.



3. After cleaning, reassemble the Solenoid and close the back cover by tightening a nut.

3. Troubleshooting > Check the saline / Check the water supply / Check the other errors



• Troubleshooting: Disinfectant generator (DES-10K)

※ Do not voluntarily modify or repair the parts inside the device.

Condition	Cause	Action
When the power lamp is not turned on.	<ul style="list-style-type: none"> –Power cord is unplugged from the socket. –Burnt out fuse. 	<ul style="list-style-type: none"> –Check the cord, fuse and plug in the cord. –Check the SMPS or Relay board inside the device. (Refer to the page 40) –If it is damaged, request a repair service.
When the Start/Stop button is not turned on.	<ul style="list-style-type: none"> –Storage tank is full of solution, and the selector is selected to [Washer]. 	<ul style="list-style-type: none"> –Select the selector to [Disinfectant]. (DES-10K Mode)
Water and saline solution are normally supplied, but the number of the power meter displays error.	<ul style="list-style-type: none"> –Abnormal <i>SMPS</i> power due to certain reasons or PCB circuit problem. 	<ul style="list-style-type: none"> –Check the SMPS. (Refer to the page 40) If it is damaged, request a repair service.
Abnormally low <i>Active chlorine</i> concentration.	<ul style="list-style-type: none"> –Refer to the electrodes replacement cycle. (Refer to page 41) 	<ul style="list-style-type: none"> –Request a repair service by contacting the seller.
When you have twinge because of micro electricity.	<ul style="list-style-type: none"> –Device is not grounded properly. –Socket is not grounded. 	<ul style="list-style-type: none"> –Check your socket is grounded. (Refer to the page 30)

※In case of abnormal operation, unplug the power cord and request a repair service by contacting the seller.

3. Troubleshooting > Check the saline / Check the water supply / Check the other errors



• Troubleshooting: High pressure washer (DES-WA100E)

※ Do not voluntarily modify or repair the parts inside the device.

Problems	Reasons	Solutions
The device does not operate.	<ol style="list-style-type: none"> 1. Power is not connected well. 2. It is loose or defective socket. 3. Pump or switch is damaged. 	<ol style="list-style-type: none"> 1. Measure supply voltage and see if it is a proper range. 2. Check the power cord for cracking or try another socket. 3. Turn off the power and wait until the overheated motor cools down. 4. Check if the pump or switch is damaged and replace the damaged part.
The amount of spray is irregular.	<ol style="list-style-type: none"> 1. The nozzle is blocked. 2. Air goes into the hose of Storage tank. 	<ol style="list-style-type: none"> 1. Clean the nozzle and gun. (Refer to the page 16) 2. Pull the trigger to release the air about 1 minute.
Pressure is too low.	<ol style="list-style-type: none"> 1. Air goes into the pump or the High pressure hose. 2. The amount of water supply is too small. 	<ol style="list-style-type: none"> 1. Check any hoses are damaged or connecting parts worn out. Check for any loose screw. 2. Check if the original water supply valve is opened properly.
Water is leaking.	<ol style="list-style-type: none"> 1. High pressure hose is damaged. 2. Screw is not tightened. 3. When you lose the gasket or it is damaged. 	<ol style="list-style-type: none"> 1. Check if the hose is damaged or connecting parts worn out. 2. Check for any loose screw. 3. Put in or change the gasket.
Crankcase is burning hot.	<ol style="list-style-type: none"> 1. When the Oil is too much. 2. There is a friction between the connecting rod and the crankshaft caused by too little oil. 3. When the change period of the Pump oil passed. 	<ol style="list-style-type: none"> 1. Let out the extra oil. 2. Please clean inside the pump with kerosene and change the Pump oil. (Refer to the page 41) (You must change the pump oil when the replacement time comes. It prevents a damage of the motor and extends the device life.)

3. Troubleshooting > Check the saline / Check the water supply / Check the other errors

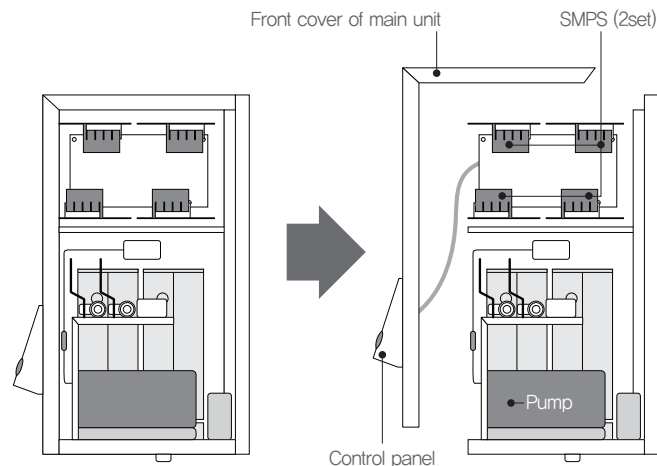


• Check the SMPS of the Disinfectant generator (DES-10K)

1. Please turn off the power before disassembling the device.
2. Disassemble the front cover of the device.
(Be careful of breaking off the Wire of control panel.)
3. Press the power switch and the Start button to create the disinfectant.
4. Check the lamp of SMPS is turned on. If not, it is broken down and you have to request repair service.

• Check the Pump of the Disinfectant generator (DES-10K)

1. Please turn off the power before disassembling the device.
2. Disassemble the front cover of the device.
(Be careful of breaking off the Wire of control panel.)
3. Press the power switch and the Start button to create the disinfectant.
4. Check the vibration of the pump. If you can't feel anything, it is broken down and you have to request repair service.



4. Replacement period > Electrodes replacement / Change the pump oil



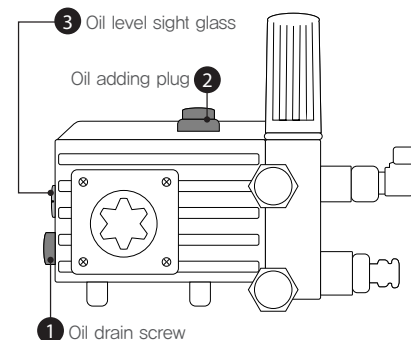
• Electrodes replacement period (DES-10K)

1. When the consumption of saline solution is significantly increasing abnormally.
 2. If the display number decreases during its normal operating process and 'Er (error)' message keeps showing up.
 3. When the smell of disinfectant significantly decrease.
- ※ A life time (approx. 10,000 hours) of the electrode may vary depending on water quality.
 ※ Request a repair in case of the above situation after a prolonged use.

• Change the Pump oil (DES-WA100E)

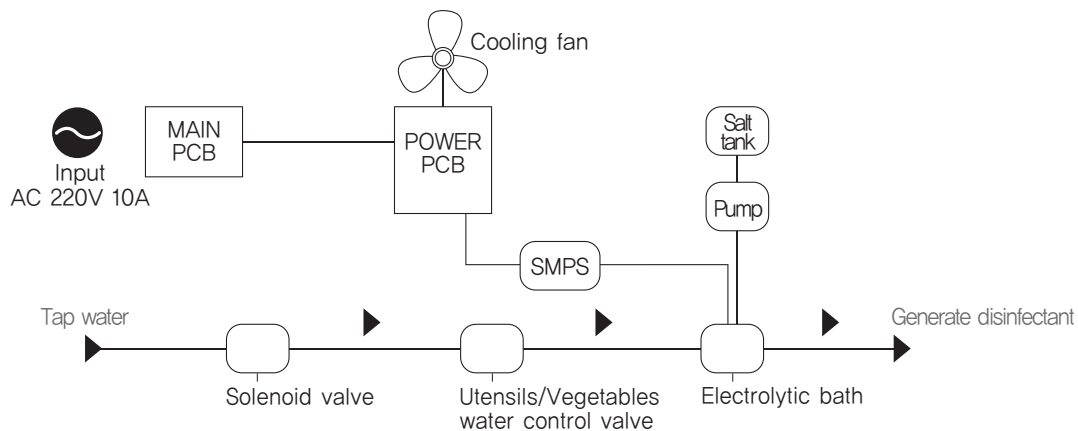
The new washer, after using for about 50 hours, the crankcase of it should be cleaned as following:

1. Place the Oil tray in front of the Oil drain screw (①).
 2. Unscrew the Oil drain screw (①) and Oil adding plug (②) to release the residual oil in the crankcase and then tighten the screw (①) back with a screwdriver.
 3. Add clean kerosene inside the Oil adding plug (②), but do not let the kerosene excess the red sign of the Oil level sight glass (③).
 4. Please run the pump with tickover for 10 to 15 SECONDS; turn off the device and letout the kerosene.
 5. After draining the kerosene, please fasten the Oil drain screw (①), and fill Oil adding plug (②) with the new pump oil (Be careful of overflowing), and then close the plug (②).
 6. After finishing it, remove the Oil tray.
- The level of the oil must be checked periodically.
 - The most important is that the oil must be changed after the first 50 hours of work and successively every 100 hours.
 - In any case we suggest change the oil at least once a year.
 - **Oil type : 15W-40 or equivalent motor oil.**
 - **Oil capacity: 350ml ± 5ml**
- When the device in not used for a long time, take apart the suction hose and high pressure hose, and letout the residual water inside the pump as well.
 - When preserving the device, pay attention to avoid the corrosion and damage. When keeping in chilly weather, consider take some anti-freezing measures like adding some Deicing fluid to protect the parts in the pump.

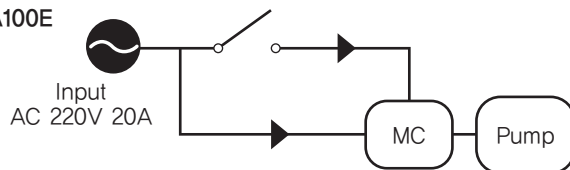


5. Block diagram

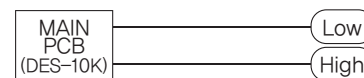
• DES-10K



• DES-WA100E

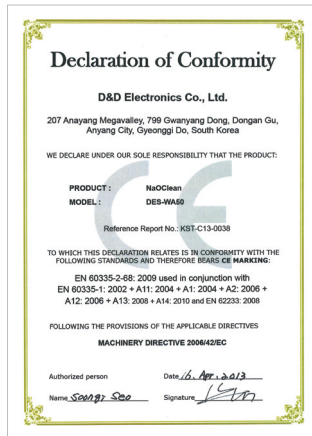


• Storage tank



Certifications

<CE>

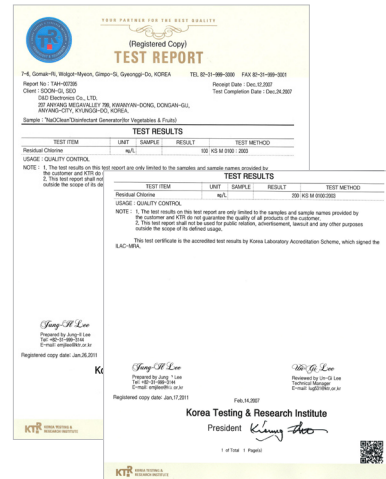


〈KFDA Health Certificate〉



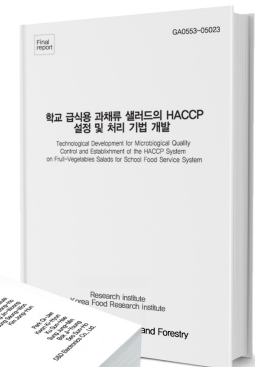
Country of destination: Australia, Indonesia, Malaysia, Singapore, Thailand, United Kingdom of Great Britain.

〈Test Report of Residual Chlorine〉



<Research paper>

Technological Development for Microbiological Quality Control and Establishment of the HACCP System on Fruit-Vegetables Salads for School FoodService System.



〈Patents & Patent-pending〉

- Water cleaning disinfectant generating and spraying device (Patent 10-0730612)
- Portable disinfectant generator (Utility model 20-0425129), and more.

Quality Warranty

Product Name	Disinfectant Generator NaOClean High pressure Washer NaOClean S
Model	DES-10K & DES-WA100E
Warranty Period	One (1) year from the date of purchase
Date of purchase	
Purchaser :	
address	
Point of purchase :	
address	

• Regulations of Product Warranty

- This product was manufactured through strict quality control and inspection.
- Services arising from failure that takes place after the expiry of the warranty period will be charged for.
- During the warranty period, one year from the date of purchase, this product shall be serviced free of charge as far as manufacturing defect is concerned.
- This product is warranted in accordance with the description on the quality warranty.



+82-1577-7544

A/S

• How to request for service

- If you find any abnormality or have a question while using this product, please contact a nearby distributor or our head office.
- In order to request for services, you need to present this quality warranty duly filled out. Therefore please keep it carefully. In case you get charged services, please make sure to keep the receipt carefully.

• Consumer damages compensation

- **Free services:** For any failure related to the function and performance of the product that takes place in the course of normal operation within the warranty period.
- **Charged services**
 1. When the warranty period has expired;
 2. During the warranty period, if failure was caused by;
 - Careless handling of the product.
 - Unauthorized repair or alteration of the product.
 - Damage during transportation due to mishandling.
 - Connection to a wrong power.

※ Please fill out the quality warranty completely and keep it carefully.



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